

# 2SC1881(K)

Silicon NPN Triple Diffused

# HITACHI

ADE-208-882 (Z)

1st. Edition

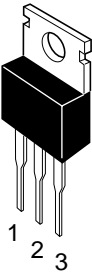
Sep. 2000

## Application

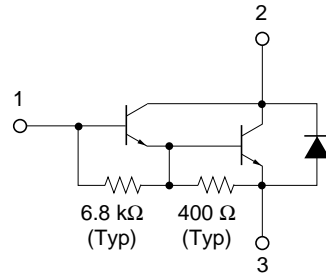
High gain amplifier power switching

## Outline

TO-220AB



1. Base
2. Collector (Flange)
3. Emitter



## Absolute Maximum Ratings (T<sub>a</sub> = 25°C)

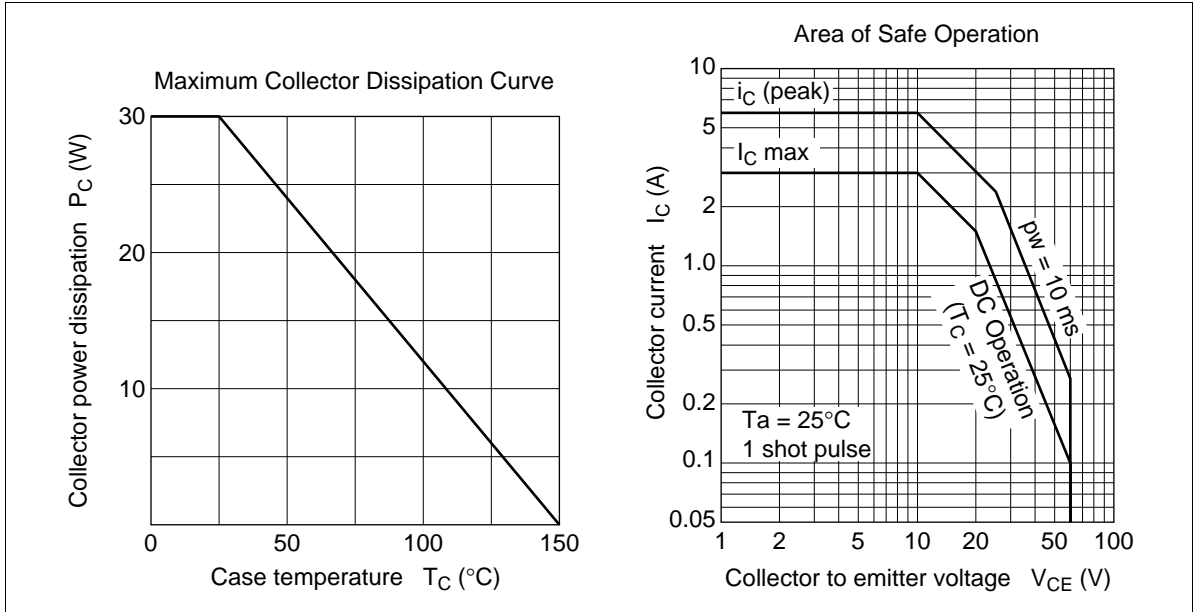
Item	Symbol	Ratings	Unit
Collector to base voltage	V <sub>CBO</sub>	60	V
Collector to emitter voltage	V <sub>CEO</sub>	60	V
Emitter to base voltage	V <sub>EBO</sub>	7	V
Collector current	I <sub>C</sub>	3	A
Collector peak current	I <sub>C(peak)</sub>	6	A
Collector power dissipation	P <sub>C</sub> *1	30	W
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Note: 1. Value at T<sub>c</sub> = 25°C.

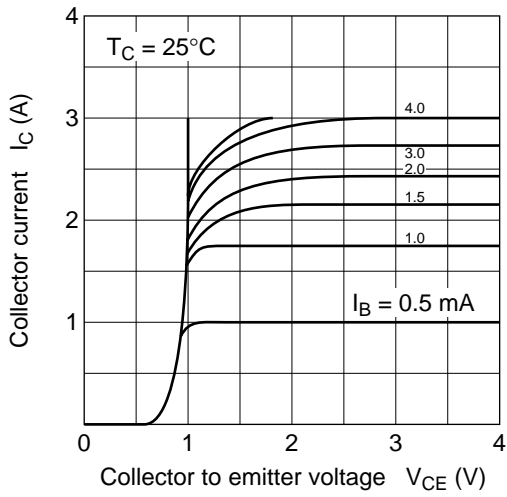
## Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	60	—	—	V	$I_C = 50 \text{ mA}$ , $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	$I_E = 50 \text{ mA}$ , $I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	0.2	mA	$V_{CB} = 60 \text{ V}$ , $I_E = 0$
	$I_{CEO}$	—	—	0.4	mA	$V_{CE} = 30 \text{ V}$ , $R_{BE} = \infty$
DC current transfer ratio	$h_{FE}$	1000	—	—		$V_{CE} = 1.5 \text{ V}$
		500	—	—		$I_C = 1.5 \text{ A}^{*1}$ $I_C = 2.5 \text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.2	V	$I_C = 2.5 \text{ A}$ , $I_B = 20 \text{ mA}^{*1}$
Turn on time	$t_{on}$	—	1	—	$\mu\text{s}$	$V_{CC} = 11 \text{ V}$ , $I_C = 2 \text{ A}$ ,
Turn off time	$t_{off}$	—	5	—	$\mu\text{s}$	$I_{B1} = -I_{B2} = 8 \text{ mA}$

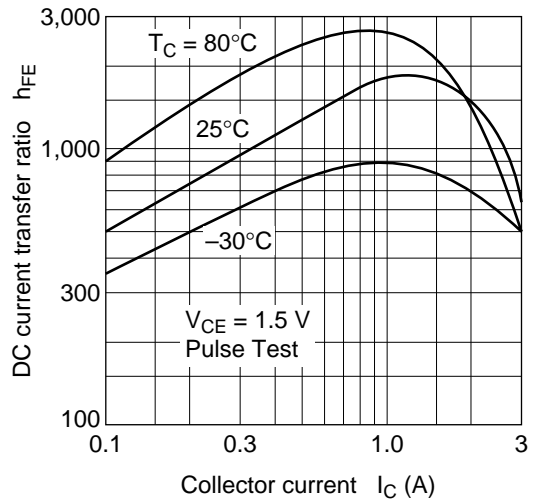
Note: 1. Pulse test.



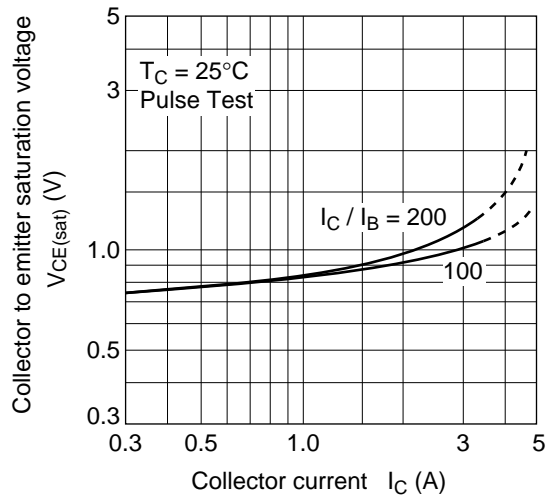
Typical Output Characteristics



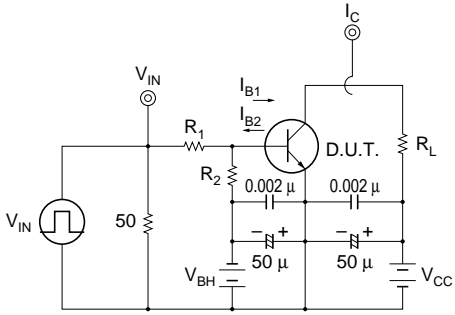
DC Current Transfer Ratio vs. Collector Current



Collector to Emitter Saturation Voltage vs. Collector Current



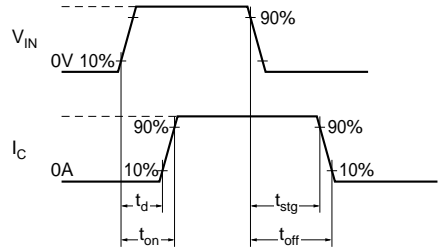
Switching Time Test Circuit



$t_r, t_f \leq 10 \text{ ns}$   
 $\text{pw} \geq 100 \mu\text{s}$   
 $\text{duty ratio} \leq 10\%$

Unit R :  $\Omega$   
 C : F

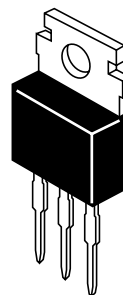
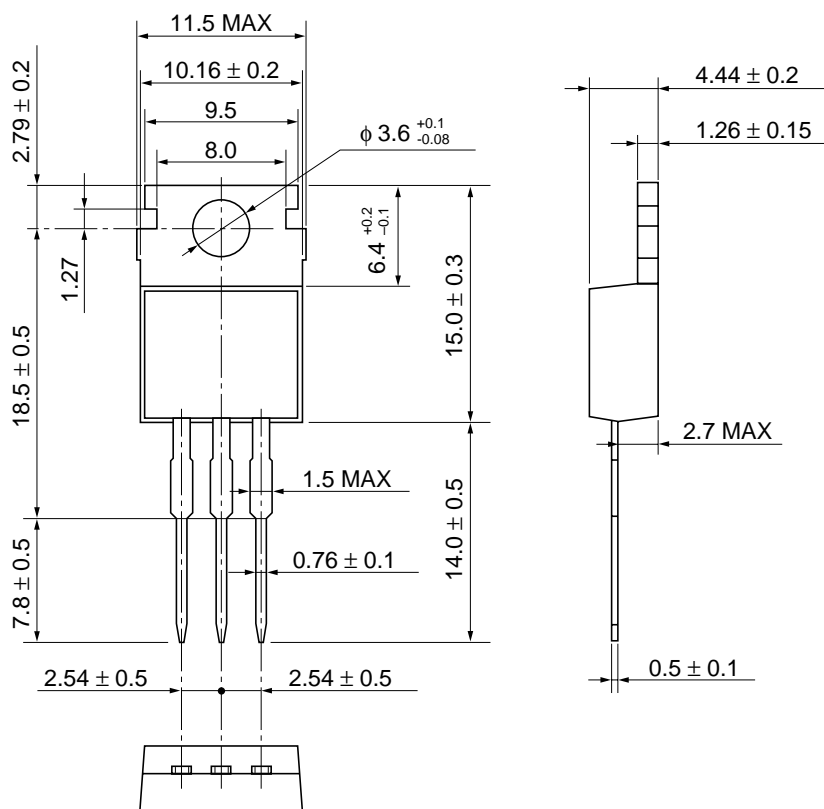
Response Waveform



$I_C$	$I_{B1}$	$I_{B2}$	$V_{CC}$	$V_{BB}$	$V_{IN}$	$R_L$	$R_1$	$R_2$
A	mA	mA	V	V	V	$\Omega$	$\Omega$	$\Omega$
2	8	-8	11	-4	7.2	5	620	910

## Package Dimensions

Unit: mm



Hitachi Code	TO-220AB
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	1.8 g

## Cautions

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## Hitachi, Ltd.

Semiconductor & Integrated Circuits.  
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan  
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL      North America      : <http://semiconductor.hitachi.com/>  
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## For further information write to:

Hitachi Semiconductor  
(America) Inc.  
179 East Tasman Drive,  
San Jose, CA 95134  
Tel: <1> (408) 433-1990  
Fax: <1> (408) 433-0223

Hitachi Europe GmbH  
Electronic Components Group  
Dornacher Straße 3  
D-85622 Feldkirchen, Munich  
Germany  
Tel: <49> (89) 9 9180-0  
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.  
Electronic Components Group.  
Whitebrook Park  
Lower Cookham Road  
Maidenhead  
Berkshire SL6 8YA, United Kingdom  
Tel: <44> (1628) 585000  
Fax: <44> (1628) 585160

Hitachi Asia Ltd.  
Hitachi Tower  
16 Collyer Quay #20-00,  
Singapore 049318  
Tel: <65>-538-6533/538-8577  
Fax : <65>-538-6933/538-3877  
URL : <http://www.hitachi.com.sg>

Hitachi Asia Ltd.  
(Taipei Branch Office)  
4/F, No. 167, Tun Hwa North Road,  
Hung-Kuo Building,  
Taipei (105), Taiwan  
Tel: <886>-(2)-2718-3666  
Fax : <886>-(2)-2718-8180  
Telex : 23222 HAS-TP  
URL : <http://www.hitachi.com.tw>

Hitachi Asia (Hong Kong) Ltd.  
Group III (Electronic Components)  
7/F., North Tower,  
World Finance Centre,  
Harbour City, Canton Road  
Tsim Sha Tsui, Kowloon,  
Hong Kong  
Tel : <852>-(2)-735-9218  
Fax : <852>-(2)-730-0281  
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